

Claims

I claim:

- 5 1. A blower assembly, comprising:
a housing adapted to receive a fan therein;
a bracket coupled to the housing;
a motor supported on the bracket and drivably coupled to the fan;
a resilient bushing coupled to the housing and positioned to support the bracket
10 thereon; and

 a one-piece fastener coupling the resilient bushing to the housing, the one-piece fastener including a first retaining portion and a second retaining portion, the resilient bushing and at least a portion of the housing being secured between the first retaining portion and the second retaining portion.

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2. The blower assembly of Claim 1, wherein the first retaining portion comprises a head, and wherein the second retaining portion comprises a deformed end portion of a shank extending from the head.

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3. The blower assembly of Claim 2, wherein the head is larger than the deformed end portion of the shank.

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4. The blower assembly of Claim 2, wherein the head is positioned adjacent the resilient bushing, and wherein the deformed end portion of the shank is positioned adjacent the housing.

5. The blower assembly of Claim 4, wherein:
the fastener is received within an aperture in the bracket; and
the head includes a diameter no smaller than a diameter of the aperture.

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6. The blower assembly of Claim 2, wherein at least a portion of the shank is hollow.

7. The blower assembly of Claim 1, further comprising a tubular support supporting at least a portion of the one-piece fastener, the tubular support having a base and a hollow shank extending from the base along a longitudinal axis.

8. The blower assembly of Claim 7, wherein the base is positioned adjacent the housing and the resilient bushing.

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9. The blower assembly of Claim 8, wherein the housing is secured between the base and one of the first and second retaining portions.

10. The blower assembly of Claim 9, wherein the one of the first and second retaining portions comprises a deformed end portion of the one-piece fastener.

11. The blower assembly of Claim 7, wherein the first retaining portion comprises a head, and wherein the second retaining portion comprises a deformed end portion of a shank extending from the head, and wherein the head is positioned adjacent the resilient bushing and an end of the hollow shank of the tubular support.

12. The blower assembly of Claim 11, wherein the hollow shank of the tubular support is positioned within the resilient bushing.

13. The blower assembly of Claim 11, wherein the shank of the one-piece fastener is received within the hollow shank of the tubular support.

14. The blower assembly of Claim 7, wherein the hollow shank has a length dimension defined along the longitudinal axis no greater than a length dimension defined along the longitudinal axis of the resilient bushing.

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15. The blower assembly of Claim 7, wherein the base includes a diameter at least as large as a diameter of the resilient bushing.

16. A blower assembly, comprising:

5 a housing adapted to receive a fan therein;
 a bracket coupled to the housing;
 a motor supported on the bracket and drivably coupled to the fan;
 a resilient bushing coupled to the housing and positioned to support the bracket;

and

10 a permanently deformable fastener coupling the resilient bushing to the housing, the permanently deformable fastener including a head and a deformable shank extending from the head, the resilient bushing and at least a portion of the housing being secured between the head and a deformed end portion of the shank.

15 17. The blower assembly of Claim 16, wherein the head is larger than the deformed end portion of the shank.

18. The blower assembly of Claim 16, wherein the head is positioned adjacent the resilient bushing, and wherein the deformed end portion of the shank is positioned adjacent the
20 housing.

19. The blower assembly of Claim 18, wherein:

the fastener is received within an aperture in the bracket; and
the head includes a diameter no smaller than a diameter of the aperture.

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20. The blower assembly of Claim 16, wherein at least a portion of the shank is hollow.

21. The blower assembly of Claim 16, further comprising a tubular support
30 supporting at least a portion of the permanently deformable fastener, wherein the tubular support includes a base and a hollow shank extending from the base along a longitudinal axis.

22. The blower assembly of Claim 21, wherein the base is positioned adjacent the housing and the resilient bushing.

5 23. The blower assembly of Claim 22, wherein the housing is secured between the base and the deformed end portion of the permanently deformable fastener.

24. The blower assembly of Claim 21, wherein the hollow shank of the tubular support is positioned within the resilient bushing.

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25. The blower assembly of Claim 21, wherein the shank of the permanently-deformable fastener is supported within the hollow shank of the tubular support.

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26. The blower assembly of Claim 21, wherein the hollow shank of the tubular support has a length dimension defined along the longitudinal axis no greater than a length dimension defined along the longitudinal axis of the resilient bushing.

27. The blower assembly of Claim 21, wherein the base includes a diameter at least as large as a diameter of the resilient bushing.

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28. A blower assembly, comprising:

a housing adapted to receive a fan therein;

a bracket coupled to the housing;

a motor supported on the bracket and drivably coupled to the fan;

25 a resilient bushing coupled to the housing and positioned to support the bracket;

and

30 a permanently deformable fastener coupling the resilient bushing to the housing, the permanently deformable fastener including a head and a deformable shank protruding from the head, at least a portion of the shank being deformed to secure the resilient bushing between the housing and the head.

29. The blower assembly of Claim 28, further comprising a tubular support within which the deformable shank of the permanently deformable fastener is received, wherein the tubular support includes a base and an at least partially hollow shank extending from the base.

5 30. The blower assembly of Claim 29, wherein the housing is secured adjacent an end of the resilient bushing.

31. The blower assembly of Claim 30, wherein the at least partially hollow shank is received within the resilient bushing.

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32. The blower assembly of Claim 30, wherein the head of the permanently-deformable fastener is positioned adjacent the resilient bushing.

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33. The blower assembly of Claim 29, wherein the deformable shank is insertable within the hollow shank of the tubular support.

34. The blower assembly of Claim 33, wherein a portion of the deformable shank is deformable within the hollow shank of the tubular support to interlock the fastener and the tubular support.

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35. A method of securing a motor assembly to a housing adapted to receive a fan therein, the method comprising:

providing a resilient bushing;

positioning the resilient bushing at a mounting portion of the housing;

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providing a permanently-deformable fastener having a head and a deformable shank extending from the head;

inserting the permanently-deformable fastener through the resilient bushing and the mounting portion of the housing; and

30 deforming an end portion of the shank such that the resilient bushing and the mounting portion of the housing is secured between the head and the deformed end portion of the shank.

36. The method of Claim 35, further comprising inserting an at least partially hollow shank of a tubular support through the resilient bushing.

5 37. The method of Claim 36, further comprising inserting the deformable shank through the at least partially hollow shank of the tubular support.

38. A blower assembly, comprising:

a housing;

10 a fan received within the housing;

a motor mounting bracket;

a motor drivably coupled to the fan and mounted upon the motor mounting bracket;

a fastener having an end extending through an aperture in one of the motor mounting bracket and the housing, the end permanently deformable to secure the motor mounting bracket

15 with respect to the housing.

39. The blower assembly of claim 38, wherein the aperture is a first aperture and the end is a first end of the fastener, the fastener having a second end extending through a second aperture in another of the motor mounting bracket and the housing.

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40. The blower assembly of claim 39, wherein the second end of the fastener has an enlarged head.